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ABSTRACT OF THE DISCLOSURE

Apparatus and a method are disclosed for the simultaneous or rapid sequential use of two or more different separations between the source and detector of the measuring apparatus to obtain spectral measurement data in diffuse transmission or "interaction" modes of collecting optical information from a specimen. The method and apparatus subsequently combine separate data taken from two or more different pathlengths to provide discrimination against undesired information while preserving or enhancing desired information. Additional reference information to normalize the optical signal is also provided. The optical and mechanical design of the optical probe also provides for transmittance, reflectance and interactance measurements on small amounts of specimen.